UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,572	03/31/2004	Albert H. Mitchell JR.	CIS0215US	6923

33031 7590 05/28/2009

CAMPBELL STEPHENSON LLP
11401 CENTURY OAKS TERRACE
BLDG. H, SUITE 250
AUSTIN, TX 78758

EXAMINER	
MERED, HABTE	

ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
05/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,572	MITCHELL ET AL.	
	Examiner	Art Unit	
	HABTE MERED	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,13-20,23-30,33-45 and 51-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13-20,23-30,33-45 and 51-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 3/9/09 has been entered and fully considered.

2. Claims 1-10, 13-20, 23-30, 33-45, and 51-60 are pending. Claims 1, 15, 25, 35, and 38 are the base independent claims. All of the base independent claims are currently amended.

Response to Arguments

3. Applicant's arguments with respect to independent claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-10, 13-20, 23-30, 33-45, and 51-55** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiso (US Pub. 2004/0105390) in view of Gai et al (US 6, 535, 491 B2) and Hebert (US 6, 728, 780 B1).

Regarding **claim 1**, Saksio'390 discloses a method comprising: detecting a failure of a first link **(Figure 1, Failure 2)**, wherein the first link **(Figure 1, LSW7 – also**

referred to as critical up-link in paragraph 28) is between a network element **(Figure 1, LAN-Switch SW7)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**; and in response to the detecting **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state),**

maintaining a communications channel between the downstream portion of the communications network and the upstream portion of the communications network by disabling a port of the network element coupled to a **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)** between the network element **(Figure 1, LAN-Switch SW7)** and a downstream portion of the communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26 to maintain communication between downstream Host 1 and upstream represented by Edge Router R2. See also paragraph 28.)**.

Saksio'390 fails to disclose a method of detecting a failure of a link wherein the first link is associated with a virtual network and also the second link is associated with the virtual network and the port of the network element is disabled as a result of the port being associated with the virtual network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Gai'491. In particular, Gai'491 discloses a method of detecting a failure of a link **(Gai'491 shows in Column 5, 10-15 that a link failure is detected and as a result reconfigures the ports to bi-pass the failure situation. See also Figure 4)** wherein the first link **(Figure 1, elements 128)** is associated with a virtual network **(Gai'491 discloses that Figure 1 is a Virtual LAN in Column 15, Lines 48-65)** and also the second link **(Figure 1, links connecting servers and hosts to the LANs)** is associated with the virtual network **(i.e. Figure 1)** and the port **(port 3 of switch 114 - see column 128-25)** of the network element **(i.e. access switch 114 of Figure 1)** is disabled as a result of the port being associated **(in Fig. 3D and Fig. 3E in block 356 and 358 when ever a port is disabled or enabled the change is reflected by running a spanning tree state machine to correct implications in the virtual network)** with the virtual network **(Figure 1 is a Virtual LAN as stated in Column 15, Lines 48-65)**.

In view of the above, having the method of Saksio'390 and then given the well established teaching of Gai'491, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Saksio'390 as taught by Gai'491, since Gai'491 clearly states in Column 15, Lines 48-50 that the benefit of using virtual networks is to provide network groupings and segregation based on functionalities.

Saksio'390 fails to disclose a method wherein the port of the network element being disabled as a result of a bandwidth between the upstream portion of the

communications network and the network element falling below a predetermined threshold as a result of the failure of the first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hebert'780. In particular, Hebert'780 discloses a method wherein the port of the network element **(i.e. ports of switch 880&820 – Fig. 9)** being disabled as a result of a bandwidth **(i.e. trunk capacity Column 11 Line 67)** between the upstream portion of the communications network **(i.e. Primary 982 connections – Fig. 9)** and the network element **(i.e. switch 880 0r 820)** falling below a predetermined threshold **(i.e. threshold of 50%)** as a result of the failure of the first link **(i.e. trunk between switch 880 and 820 is the first link and if the connections on the trunk fail below a certain predetermined threshold the port of the network element switch 820.is disabled and failover to secondary 984 connection occurs – see Fig. 9 and Column 11 Line 49 to Column 12 line 10)**.

In view of the above, having the method of Saksio'390 and then given the well established teaching of Hebert'780, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Saksio'390 as taught by Hebert, since Hebert' clearly states in Column 2, Lines 42-48 that the modification results in minimized network interruptions and is portable across multiple platforms. Further Hebert'780 in Column 13, Lines 40-67 discloses that his system is compatible with virtual networks and the primary connection and secondary connection can be part of a virtual network making the disclosure compatible with the teaching of Saksio'390 as modified by the teachings of Gai'491.

Regarding **claim 2,** Saksio'390 discloses a method wherein the downstream portion of the communications network comprises a redundantly linked network element. **(See Figure 1, Hosts 1…9 is multi-homed with active and stand-by links).**

Regarding **claim 3,** Saksio'390 discloses a method wherein the redundantly-linked network element comprises a protocol stack including a first protocol stack layer and a second protocol stack layer, the first protocol stack layer is associated with one or more applications, and the disabling comprises notifying the second protocol stack layer of the failure. **(See Figures 2a and 2b - the protocol stacks involved are the MAC and PHY layers)**

Regarding **claim 4**, Saksio'390 discloses a method wherein the network element comprises a primary network element **(Figure 1, LAN-SW1)**, the method further comprises enabling a third link between the redundantly-linked network element **(Figure 1, Host 1)** and a secondary network element **(Figure 1, LAN-SW2)**, and the secondary network element is coupled to the upstream portion of the communications network using a fourth link **(Figure 1, LSW2). (See also paragraphs 26-29).**

Regarding **claim 5**, Saksio'390 discloses a method wherein the redundantly linked network element comprises a multi-homed end station **(See Figure 1, all Hosts are indeed multi-homed end station)**.

Regarding **claim 6**, Saksio'390 discloses a method wherein the network element comprises a data link layer network element. **(See Paragraphs 6 and 18)**

Regarding **claim 7**, Saksio'390 discloses a method wherein the data link layer network element comprises an Ethernet switch. **(See Figures 1 and 2a – the LAN Switch is an Ethernet switch)**

Regarding **claim 8**, Saksio'390 discloses a method wherein the upstream portion of the communications network comprises a network layer network element. **(Figure 1 – R1 and R2 are routers and are network layer network elements)**

Regarding **claim 9**, Saksio'390 discloses a method wherein the disabling comprises: disabling a plurality of links between the network element and a plurality of redundantly-linked network elements. **(Due to Failure 2 links LSW1, LSW3 and LSW4 are disabled – see paragraph 28)**

Regarding **claim 10,** Saksio'390 discloses a method wherein the disabling comprises: disabling a link of a plurality of links between the network element and a plurality of redundantly-linked network elements. **(Due to Failure 2 links LSW1, LSW3 and LSW4 are disabled – see paragraph 28)**

Regarding **claim 13**, Saksio'390 discloses a method wherein the disabling comprises: disabling the port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** the second link between the network element and the downstream portion of the communications network within a period of time substantially less than or equal to 50 milliseconds of the detecting. **(See Paragraphs 14 and 16)**

Regarding **claim 14,** Saksio'390 discloses a method wherein the disabling comprises: disabling the port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** the second link between said network element and said downstream portion of the communications network within a period of time substantially less than or equal to 2 seconds of the detecting. **(See Paragraphs 14 and 16 and given that Saksio'390 teaches the same method the same performance has to be produced)**

Regarding **claim 15**, Saksio'390 discloses an apparatus **(See Figure 1)** comprising: means for detecting **(link down state is propagated down the chain all**

the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state) a failure of a first link **(Figure 1, Failure 2)**, wherein the first link **(Figure 1, LSW7 – also referred to as critical up-link in paragraph 28)** is between a network element **(Figure 1, LAN-Switch SW7)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**; and means for maintaining a communications channel between the downstream portion of the communications network and the upstream portion of the communications network by disabling a port of the network element coupled to a **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** a second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)** between the network element **(Figure 1, LAN-Switch SW7)** and a downstream portion of the communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26. See also paragraph 28)**.

Saksio'390 fails to disclose an apparatus for detecting a failure of a link wherein the first link is associated with a virtual network and also the second link is associated with the virtual network and the port of the network element is disabled as a result of the port being associated with the virtual network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Gai'491. In particular, Gai'491 discloses an apparatus for detecting a

failure of a link **(Gai'491 shows in Column 5, 10-15 that a link failure is detected and as a result reconfigures the ports to bi-pass the failure situation. See also Figure 4)** wherein the first link **(Figure 1, elements 128)** is associated with a virtual network **(Gai'491 discloses that Figure 1 is a Virtual LAN in Column 15, Lines 48-65)** and also the second link **(Figure 1, links connecting servers and hosts to the LANs)** is associated with the virtual network **(i.e. Fig. 1)** and the port **(port 3 of switch 114 - see column 128-25)** of the network element **(i.e. access switch 114 of Figure 1)** is disabled as a result of the port being associated **(in Fig. 3D and Fig. 3E in block 356 and 358 when ever a port is disabled or enabled the change is reflected by running a spanning tree state machine to correct implications in the virtual network)** with the virtual network **(Figure 1 is a Virtual LAN as stated in Column 15, Lines 48-65)**.

In view of the above, having the apparatus of Saksio'390 and then given the well established teaching of Gai'491, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Saksio'390 as taught by Gai'491, since Gai'491 clearly states in Column 15, Lines 48-50 that the benefit of using virtual networks is to provide network groupings and segregation based on functionalities.

Saksio'390 fails to disclose an apparatus wherein the port of the network element being disabled as a result of a bandwidth between the upstream portion of the communications network and the network element falling below a predetermined threshold as a result of the failure of the first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hebert'780. In particular, Hebert'780 discloses an apparatus wherein the port of the network element **(i.e. ports of switch 880&820 – Fig. 9)** being disabled as a result of a bandwidth **(i.e. trunk capacity Column 11 Line 67)** between the upstream portion of the communications network **(i.e. Primary 982 connections – Fig. 9)** and the network element **(i.e. switch 880 0r 820)** falling below a predetermined threshold **(i.e. threshold of 50%)** as a result of the failure of the first link **(i.e. trunk between switch 880 and 820 is the first link and if the connections on the trunk fail below a certain predetermined threshold the port of the network element switch 820.is disabled and failover to secondary 984 connection occurs – see Fig. 9 and Column 11 Line 49 to Column 12 line 10)**.

In view of the above, having the apparatus of Saksio'390 and then given the well established teaching of Hebert'780, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Saksio'390 as taught by Hebert, since Hebert' clearly states in Column 2, Lines 42-48 that the modification results in minimized network interruptions and is portable across multiple platforms. Further Hebert'780 in Column 13, Lines 40-67 discloses that his system is compatible with virtual networks and the primary connection and secondary connection can be part of a virtual network making the disclosure compatible with the teaching of Saksio'390 as modified by the teachings of Gai'491.

Regarding **claim 16**, it is noted that the limitations of claim 16 corresponds to that of claim 2 as discussed above, please see the Examiner's comments with respect to claim 2 as set forth in the rejection above.

Regarding **claim 17**, it is noted that the limitations of claim 17 corresponds to that of claim 3 as discussed above, please see the Examiner's comments with respect to claim 3 as set forth in the rejection above.

Regarding **claim 18**, it is noted that the limitations of claim 18 corresponds to that of claim 4 as discussed above, please see the Examiner's comments with respect to claim 4 as set forth in the rejection above.

Regarding **claim 19**, it is noted that the limitations of claim 19 corresponds to that of claim 5 as discussed above, please see the Examiner's comments with respect to claim 5 as set forth in the rejection above.

Regarding **claim 20**, it is noted that the limitations of claim 20 corresponds to that of claim 10 as discussed above, please see the Examiner's comments with respect to claim 10 as set forth in the rejection above.

Regarding **claim 23**, it is noted that the limitations of claim 23 corresponds to that of claim 13 as discussed above, please see the Examiner's comments with respect to claim 13 as set forth in the rejection above.

Regarding claim 24, it is noted that the limitations of claim 24 corresponds to that of claim 14 as discussed above, please see the Examiner's comments with respect to claim 14 as set forth in the rejection above.

Regarding **claim 25**, Saksio'390 discloses a machine readable storage medium having a plurality of instructions executable by a machine embodied therein **(See Figures 2A and 2B showing implementation of the switch and host and in paragraphs 33 and 36 Saksio'390 describes the medium the instruction is stored)**, wherein the plurality of instructions wherein executed cause the machine to perform a method comprising: detecting **(link down state is propagated down the chain all the way to the hosts as stated in paragraphs 18, 28, and 29. Pretty much detection is maintained by sending messages indicating link up state or link-down state)**a failure of a first link **(Figure 1, Failure 2)**, wherein the first link **(Figure 1, LSW7 – also referred to as critical up-link in paragraph 28)** is between a network element **(Figure 1, LAN-Switch SW7)** and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**; and in response to the detecting, maintaining a communications channel between the downstream portion of the communications network and the

upstream portion of the communications network by disabling a port of the network element coupled to a **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)** between the network element **(Figure 1, LAN-Switch SW7)** and a downstream portion of the communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26. See also paragraph 28)**.

Saksio'390 fails to disclose detecting a failure of a link wherein the first link is associated with a virtual network and also the second link is associated with the virtual network and the port of the network element is disabled as a result of the port being associated with the virtual network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Gai'491. In particular, Gai'491 discloses detecting a failure of a link **(Gai'491 shows in Column 5, 10-15 that a link failure is detected and as a result reconfigures the ports to bi-pass the failure situation. See also Figure 4)** wherein the first link **(Figure 1, elements 128)** is associated with a virtual network **(Gai'491 discloses that Figure 1 is a Virtual LAN in Column 15, Lines 48-65)** and also the second link **(Figure 1, links connecting servers and hosts to the LANs)** is associated with the virtual network **(i.e. Fig. 1)** and the port **(port 3 of switch 114 - see column 128-25)** of the network element **(i.e. access switch 114 of Figure 1)** is

disabled as a result of the port being associated **(in Fig. 3D and Fig. 3E in block 356 and 358 when ever a port is disabled or enabled the change is reflected by running a spanning tree state machine to correct implications in the virtual network)** with the virtual network **(Figure 1 is a Virtual LAN as stated in Column 15, Lines 48-65)**.

In view of the above, having the method stored in a machine-readable storage medium of Saksio'390 and then given the well established teaching of Gai'491, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method stored in a machine-readable storage medium of Saksio'390 as taught by Gai'491, since Gai'491 clearly states in Column 15, Lines 48-50 that the benefit of using virtual networks is to provide network groupings and segregation based on functionalities.

Saksio'390 fails to disclose a medium wherein the port of the network element being disabled as a result of a bandwidth between the upstream portion of the communications network and the network element falling below a predetermined threshold as a result of the failure of the first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hebert'780. In particular, Hebert'780 discloses a medium wherein the port of the network element **(i.e. ports of switch 880&820 – Fig. 9)** being disabled as a result of a bandwidth **(i.e. trunk capacity Column 11 Line 67)** between the upstream portion of the communications network **(i.e. Primary 982 connections – Fig. 9)** and the network element **(i.e. switch 880 0r 820)** falling below a predetermined threshold **(i.e.**

threshold of 50%) as a result of the failure of the first link **(i.e. trunk between switch 880 and 820 is the first link and if the connections on the trunk fail below a certain predetermined threshold the port of the network element switch 820.is disabled and failover to secondary 984 connection occurs – see Fig. 9 and Column 11 Line 49 to Column 12 line 10)**.

In view of the above, having the medium of Saksio'390 and then given the well established teaching of Hebert'780, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the medium of Saksio'390 as taught by Hebert, since Hebert' clearly states in Column 2, Lines 42-48 that the modification results in minimized network interruptions and is portable across multiple platforms. Further Hebert'780 in Column 13, Lines 40-67 discloses that his system is compatible with virtual networks and the primary connection and secondary connection can be part of a virtual network making the disclosure compatible with the teaching of Saksio'390 as modified by the teachings of Gai'491.

Regarding **claim 26**, it is noted that the limitations of claim 26 corresponds to that of claim 2 as discussed above, please see the Examiner's comments with respect to claim 2 as set forth in the rejection above.

Regarding **claim 27**, it is noted that the limitations of claim 27 corresponds to that of claim 3 as discussed above, please see the Examiner's comments with respect to claim 3 as set forth in the rejection above.

Regarding **claim 28**, it is noted that the limitations of claim 28 corresponds to that of claim 4 as discussed above, please see the Examiner's comments with respect to claim 4 as set forth in the rejection above.

Regarding **claim 29**, it is noted that the limitations of claim 29 corresponds to that of claim 5 as discussed above, please see the Examiner's comments with respect to claim 5 as set forth in the rejection above.

Regarding **claim 30,** it is noted that the limitations of claim 30 corresponds to that of claim 10 as discussed above, please see the Examiner's comments with respect to claim 10 as set forth in the rejection above.

Regarding **claim 33**, it is noted that the limitations of claim 33 corresponds to that of claim 13 as discussed above, please see the Examiner's comments with respect to claim 13 as set forth in the rejection above.

Regarding claim 34, it is noted that the limitations of claim 34 corresponds to that of claim 14 as discussed above, please see the Examiner's comments with respect to claim 14 as set forth in the rejection above.

Regarding **claims 35**, Saksio'390 discloses a data processing system comprising: a redundantly-linked end station **(See Hosts 1…9 which is multi-homed)**; and a network element **(Figure 1, LSW7)** configured to detect a failure of a first link, wherein the first link is **(Figure 1, LSW7)** between the network element and an upstream portion of a communications network **(towards R1 and R2 is upstream direction where as towards Host1…9 is downstream --- See paragraph 27)**, and in response to the failure, maintain a communications channel between the redundantly-linked end station and the upstream portion of the communications network **(Figure 1, LAN-Switch SW7)** and a downstream portion of the communications network **(when the failure is detected the Host 1 switches the active $L1_1$ to the stand-by link $L1_2$ see paragraph 26. See also paragraph 28)** by disabling by disabling a port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** a second link **(Figure 1, LSW 1 and $L1_1$ are secondary links that connect host to critical link)** between the network element and the redundantly-linked end station to maintain a communications channel between the redundantly-linked end station and the upstream portion of the communications network in response to the failure **(See also Paragraphs 26, 27, and 28)**.

Saksio'390 fails to disclose a system of detecting a failure of a link wherein the first link is associated with a virtual network and also the second link is associated with

the virtual network and the port of the network element is disabled as a result of the port being associated with the virtual network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Gai'491. In particular, Gai'491 discloses a method of detecting a failure of a link **(Gai'491 shows in Column 5, 10-15 that a link failure is detected and as a result reconfigures the ports to bi-pass the failure situation. See also Figure 4)** wherein the first link **(Figure 1, elements 128)** is associated with a virtual network **(Gai'491 discloses that Figure 1 is a Virtual LAN in Column 15, Lines 48-65)** and also the second link **(Figure 1, links connecting servers and hosts to the LANs)** is associated with the virtual network**(i.e. Fig. 1)** and the port **(port 3 of switch 114 - see column 128-25)** of the network element **(i.e. access switch 114 of Figure 1)** is disabled as a result of the port being associated **(in Fig. 3D and Fig. 3E in block 356 and 358 when ever a port is disabled or enabled the change is reflected by running a spanning tree state machine to correct implications in the virtual network)** with the virtual network **(Figure 1 is a Virtual LAN as stated in Column 15, Lines 48-65)**.

In view of the above, having the system of Saksio'390 and then given the well established teaching of Gai'491, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Gai'491, since Gai'491 clearly states in Column 15, Lines 48-50 that the benefit of using virtual networks is to provide network groupings and segregation based on functionalities.

Saksio'390 fails to disclose a system wherein the port of the network element being disabled as a result of a bandwidth between the upstream portion of the communications network and the network element falling below a predetermined threshold as a result of the failure of the first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hebert'780. In particular, Hebert'780 discloses a system wherein the port of the network element **(i.e. ports of switch 880&820 – Fig. 9)** being disabled as a result of a bandwidth **(i.e. trunk capacity Column 11 Line 67)** between the upstream portion of the communications network **(i.e. Primary 982 connections – Fig. 9)** and the network element **(i.e. switch 880 0r 820)** falling below a predetermined threshold **(i.e. threshold of 50%)** as a result of the failure of the first link **(i.e. trunk between switch 880 and 820 is the first link and if the connections on the trunk fail below a certain predetermined threshold the port of the network element switch 820.is disabled and failover to secondary 984 connection occurs – see Fig. 9 and Column 11 Line 49 to Column 12 line 10)**.

In view of the above, having the system of Saksio'390 and then given the well established teaching of Hebert'780, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Hebert, since Hebert' clearly states in Column 2, Lines 42-48 that the modification results in minimized network interruptions and is portable across multiple platforms. Further Hebert'780 in Column 13, Lines 40-67 discloses that his system is compatible with virtual networks and the primary connection and secondary connection

can be part of a virtual network making the disclosure compatible with the teaching of Saksio'390 as modified by the teachings of Gai'491.

Regarding **claims 36**, Saksio'390 discloses a data processing system wherein the network element comprises a primary network element **(Figure 1, LAN-SW1)**, the redundantly-linked end station **(Host 1)** is configured to enable a third link **(Figure 1, $L1_2$)** between the redundantly-linked end station and a secondary network element **(Figure 1, LAN-SW2)**, and the secondary network element is coupled to the upstream portion of the communications network using a fourth link **(Figure 1, LAN-SW2)**.

Regarding **claim 37**, Saksio'390 discloses a data processing system wherein the network element comprises an Ethernet switch. **(See Figure 2a and all the LAN switches in Figure 1 are Ethernet switches)**

Regarding **claim 38**, Saksio discloses a data processing system comprising:
a redundantly-linked end station **(See Hosts 1…9 which is multi-homed)**;
a primary network element **(Figure 1, LAN-SW1)**, wherein the primary network element is coupled to an upstream portion of a communications network using a first link **(Figure 1, LSW1)**, the primary network element is coupled to the redundantly-linked end station using a second link **(Figure 1, $L1_1$)** and the primary network element is configured to detect a failure of the first link **(Figure 1, Failure 1)**, and
disable a port of the primary network element coupled to **(Saksio'390 discloses when**

failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages) the second link to maintain a communications channel between the redundantly-linked end station and the upstream portion of the communications network in response to the failure **(See paragraphs 26 and 27)**; and a secondary network element **(Figure 1, LAN-SW2)**, wherein the secondary network element is coupled to the redundantly-linked end station using a third link **(Figure 1, $L1_2$)**. **(See Paragraphs 26, 27, and 28)**

Saksio'390 fails to disclose a system of detecting a failure of a link wherein the first link is associated with a virtual network and also the second link is associated with the virtual network and the port of the network element is disabled as a result of the port being associated with the virtual network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Gai'491. In particular, Gai'491 discloses a method of detecting a failure of a link **(Gai'491 shows in Column 5, 10-15 that a link failure is detected and as a result reconfigures the ports to bi-pass the failure situation. See also Figure 4)** wherein the first link **(Figure 1, elements 128)** is associated with a virtual network **(Gai'491 discloses that Figure 1 is a Virtual LAN in Column 15, Lines 48-65)** and also the second link **(Figure 1, links connecting servers and hosts to the LANs)** is associated with the virtual network**(i.e. Fig. 1)** and the port **(port 3 of switch 114 - see column 128-25)** of the network element **(i.e. access switch 114 of Figure 1)** is disabled as a result of the port being associated **(in Fig. 3D and Fig. 3E in block 356**

and 358 when ever a port is disabled or enabled the change is reflected by running a spanning tree state machine to correct implications in the virtual network) with the virtual network **(Figure 1 is a Virtual LAN as stated in Column 15, Lines 48-65)**.

In view of the above, having the system of Saksio'390 and then given the well established teaching of Gai'491, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Gai'491, since Gai'491 clearly states in Column 15, Lines 48-50 that the benefit of using virtual networks is to provide network groupings and segregation based on functionalities.

Saksio'390 fails to disclose a system wherein the port of the network element being disabled as a result of a bandwidth between the upstream portion of the communications network and the network element falling below a predetermined threshold as a result of the failure of the first link.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hebert'780. In particular, Hebert'780 discloses a system wherein the port of the network element **(i.e. ports of switch 880&820 – Fig. 9)** being disabled as a result of a bandwidth **(i.e. trunk capacity Column 11 Line 67)** between the upstream portion of the communications network **(i.e. Primary 982 connections – Fig. 9)** and the network element **(i.e. switch 880 0r 820)** falling below a predetermined threshold **(i.e. threshold of 50%)** as a result of the failure of the first link **(i.e. trunk between switch 880 and 820 is the first link and if the connections on the trunk fail below a certain**

predetermined threshold the port of the network element switch 820.is disabled and failover to secondary 984 connection occurs – see Fig. 9 and Column 11 Line 49 to Column 12 line 10).

In view of the above, having the system of Saksio'390 and then given the well established teaching of Hebert'780, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Saksio'390 as taught by Hebert, since Hebert' clearly states in Column 2, Lines 42-48 that the modification results in minimized network interruptions and is portable across multiple platforms. Further Hebert'780 in Column 13, Lines 40-67 discloses that his system is compatible with virtual networks and the primary connection and secondary connection can be part of a virtual network making the disclosure compatible with the teaching of Saksio'390 as modified by the teachings of Gai'491.

Regarding **claim 39**, Saksio'390 discloses a data processing system, wherein the redundantly-linked end station **(Figure 1, Host 1)** is configured to enable the third link **(Figure 1, $L1_2$)**, and the secondary network element **(Figure 1, LAN-SW2)** is coupled to the upstream portion of the communication network using a fourth link **(Figure 1, LSW2)**

Regarding **claims 40**, Saksio'390 discloses a data processing system wherein the primary network element comprises an Ethernet switch. **(See Figure 2a and all the LAN switches in Figure 1 are Ethernet switches)**

Regarding **claim 41**, the combination of Saksio'390 and Gai'491 discloses a method wherein the second link is a downstream link that is individually predetermined by a configuration interface. **(Saksio'390 already teaches the second link is a downstream link. Similarly Gai'491 in Figure 1 shows that the secondary downstream link 128 connected to port 3 of switch 114 is disabled and consequently one of the back-up ports 2 or 4 will be activated as detailed in Gai'491's Column 11, Lines 30-46. The configuration interface of the access switch 114 of Figure 1 is shown in Figure 2 collectively as Rapid Reconfiguration Entity 234. The Rapid Reconfiguration Entity 234 of Figure 2 chooses the pre-selected backup port and the link associated with the port to be active upon detection of the failure of port in the forward state. Gai'491 teaches at the minimum the ability to select a link to disable and/or enable using the Rapid Reconfiguration Entity as detailed in Column 12, Lines 8-27 and shown in detail in Figure 3D.)**

Regarding **claim 42**, it is noted that the limitations of claim 42 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 43**, it is noted that the limitations of claim 43 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 44**, it is noted that the limitations of claim 44 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 45**, it is noted that the limitations of claim 45 corresponds to that of claim 41 as discussed above, please see the Examiner's comments with respect to claim 41 as set forth in the rejection above.

Regarding **claim 51**, the combination of Saksio'390 and Gai'491 discloses a method wherein the disabling the port of the network element coupled to **(Saksio'390 discloses when failure occurs on the first critical link, LSW7, all LAN ports and/or corresponding links are disabled by being declared as being as non-functional by propagating link down state messages)** the second link on-demand in response to analyzing a plurality of system attributes **(Gai'491 shows in Column 8, Lines 48-52 that the Administrator can enter on-demand commands in the switches to select links and configure switches with blocked and forwarding ports in response to various conditions including analyzing system messages like the BPDUs as detailed in Column 11, Lines 48-60)**.

Regarding **claim 52**, it is noted that the limitations of claim 52 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 53**, it is noted that the limitations of claim 53 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 54**, it is noted that the limitations of claim 54 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

Regarding **claim 55**, it is noted that the limitations of claim 55 corresponds to that of claim 51 as discussed above, please see the Examiner's comments with respect to claim 51 as set forth in the rejection above.

5. **Claims 56-60** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saksio'390 in view of Gai'491 and Hebert'780 as applied to claims 1, 15, 25, 35, and 38 respectively above, and further in view of Hamami (US 5, 959, 972).

Regarding **claim 56**, the combination of Saksio'390 and Gai'491 fail to disclose a method further comprising: the redundantly-linked network element failing back to the second link when the first link and the second link become operational again.

However, the above mentioned claimed limitations are well known in the art as evidenced by Hamami'972. In particular, Hamami'972 discloses a method further comprising: the redundantly-linked network element **(Figures 1 and 2, switches #1 and #2)** failing back to the second link **(i.e. main link 60 connecting port 1 of each switch Column 5, Lines 10-20)** when the first link **(backup link 62 connecting port 2 of each switch)** and the second link become operational again **(Hamami'972 discloses after the main link 60 of a redundantly linked switch 1 or 2 fails then traffic is switched to the backup link 62 of switch 1 or 2. Once the main link 60 is back the traffic is switched back to link 60 from link 62 - see for details Figs. 1 and 2 and Column 4, Lines 39-50 and Column 5, Lines 10-20)**.

In view of the above, having the method based on the combination of Saksio'390 and Gai'491and then given the well established teaching of Hamami'972, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Saksio'390 and Gai'491as taught by Hamami'972, since Hamami'972 clearly states in Column 2, Lines 20-22 and Column 3, Lines 55-60 that the benefit of the modification is to provide high reliability connectivity between network elements.

Regarding **claim 57**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 58**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 59**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Regarding **claim 60**, it is noted that the limitations of claim 56 corresponds to that of claim 56 as discussed above, please see the Examiner's comments with respect to claim 56 as set forth in the rejection above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-6046. The examiner can normally be reached on Monday to Friday 10:30AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2416

/Habte Mered/
Examiner, Art Unit 2416

5-23-09